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ABSTRACT
What better way is there to learn about something than to hold it, examine it, and take it apart? The Match Box Project (Materials and Activities for Teachers and Children) loans to schools a series of boxes which contain materials, equipment, supplies, and activities designed as a unit to foster the teaching/learning of specific subjects at the elementary school level. Musical Shapes and Sounds is designed for grades three and four. This Match Box gives children the chance to study instruments first-hand, to begin thinking about their sizes and shapes, the variety of sounds they make, and how these are related. The guide presents a two-week program for using the Box. It describes the materials: the instruments and extra strings, reeds, and mouthpieces; 20 pamphlets; clothesline and 20 clothespins; photos, record, film and riddle book. The guide also describes the activities planned and offers a flexible time schedule. The teacher may follow the program completely or adapt parts of the Box to a class's particular needs and interests. The program will lead the children to ask questions. The authors hope that, in time, this interest will grow and develop. (MM)

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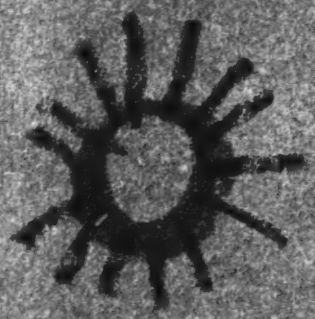

MUSICAL SHAPES AND SOUNDS

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THE MATCH BOX PROJECT

Materials and Activities for Teachers and CHildren

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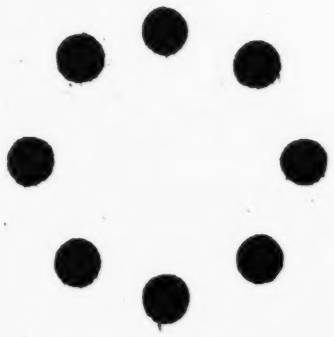
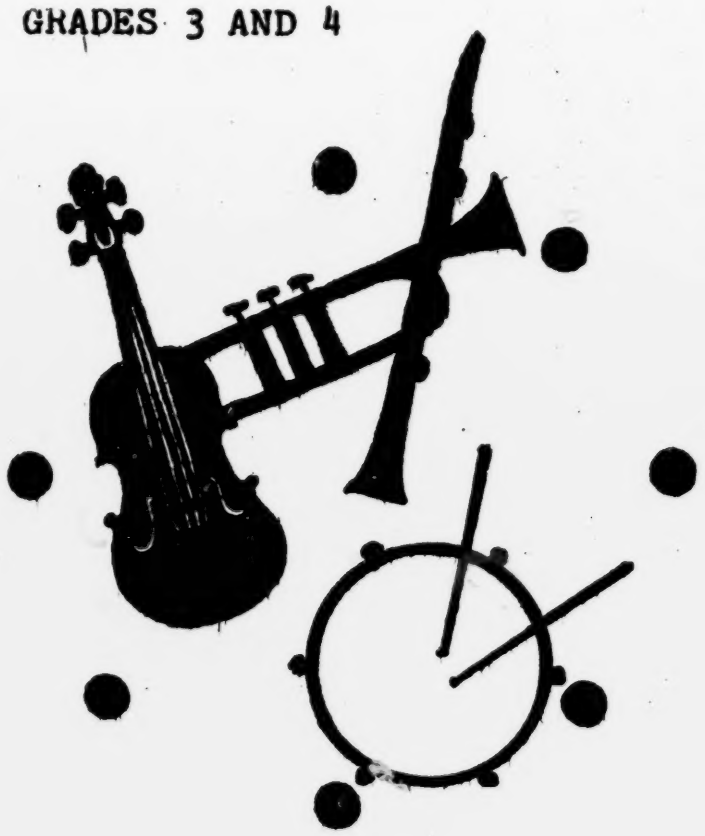


BY
TOBY LEVINE
JUDY GREENE
PAUL FISHMAN

TEACHER'S GUIDE TO

MUSICAL SOUNDS AND SHAPES

GRADES 3 AND 4



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INTRODUCTION

What better way is there to learn about something than to hold it, examine it, and take it apart? This MATCH Box gives children the chance to study instruments first-hand, to begin thinking about their sizes and shapes, the variety of sounds they make, and how these are related. It will lead them to ask questions. We hope that, in time, this interest will grow and develop.

WHAT?
YOU'RE NOT A MUSICIAN?

Don't Worry. You don't have to be an expert to use this box. It is designed for exploring the field of music and sound. We hope that many of the teachers who use the Box will treat it as an opportunity to enjoy and discover new things along with their students.

THE GUIDE

This guide presents a 2-week program for using the Box. It describes the materials, the activities planned for their use, and offers a flexible time schedule. You may choose to follow the program completely, or you may prefer to experiment, and to adapt parts of the Box to your class's particular needs and interests.

We urge strongly that you read the entire guide at the beginning for a view of the Box as a whole. This initial run-through will help you decide what you will be needing from the Box and the classroom, and how best to schedule your time. It is important to allow a day at the end of the unit for PART V, HOW DOES IT SOUND, which helps to tie together the threads of the different activities in a meaningful way.

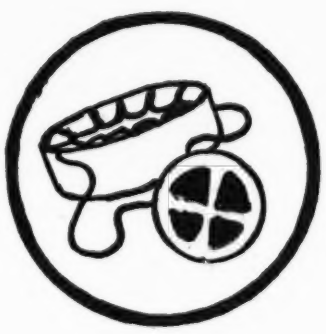
WHAT'S IN THE BOX

teacher's guide
Sound Sense by Geoffrey Russell-Smith

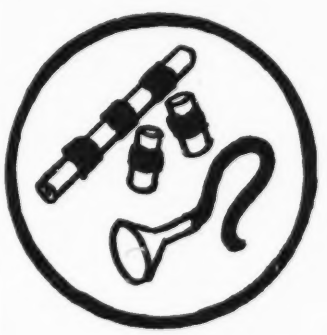
violin and bow
   extra bridge
   extra strings
clarinet
   12 reeds
snare drum
   2 sticks
   2 brushes
trumpet
   12 mouthpieces
2 instruction charts
container of listerine

20 pamphlets in pouches
clothesline
20 clothespins

22 mounted photos
record
riddle book



steel drum
film



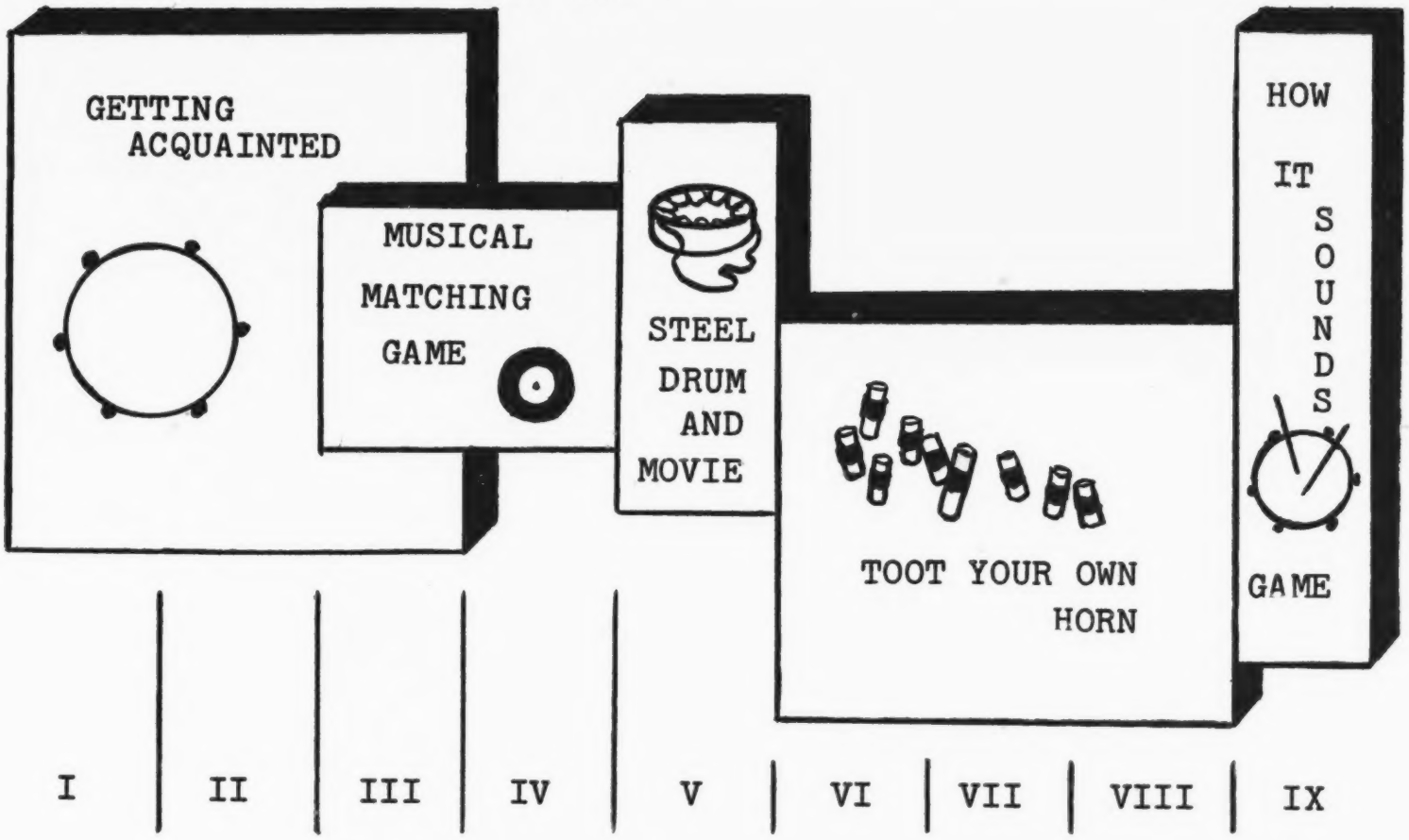
pipes
connectors
2 hoses
2 funnels

Can you furnish:
movie projector, Part III
phonograph, Parts II and IV

HOW TO PLAN

The Box is arranged in five parts. Each part is built around an activity which has its own emphasis and materials. In the first section, the children study four instruments. In the second part, a game played with photographs and recorded passages, the students are introduced to a broader selection of instruments. Instrument-making is first discussed in the third part. The children examine a steel drum, and then see a film on how this type of instrument is made. After this the children build their own instruments using pipes, hoses and other materials. The fifth and final activity, a guessing game with sounds of new instruments, completes the unit and ties it together.

The diagram below maps out a suggested schedule for you. You may wish to change the timing to spend more or less time on a certain activity or to abbreviate the whole unit if you have less than two weeks for the Box.



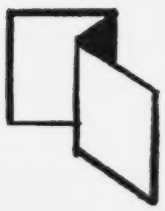
GETTING ACQUAINTED

To find out what makes something tick, there is nothing like having it in your hands. The children will begin working on the Box by doing just this with the violin, trumpet, clarinet and drum. The objective of this part of the Box is to let them plunge in completely, learning as much as they can about the instruments on their own. They should take them apart, put them back together, play them, and above all, enjoy them!

What's needed

ABOUT THE INSTRUMENTS

The instruments in the Box may be quite new to you. On the other hand, you may know all there is to know about them. In either case, the best preparation for bringing them into the classroom is to spend some time with them yourself. We have also included the book Sound Sense, by Geoffrey Russell-Smith. It is short and interesting and contains helpful background information.

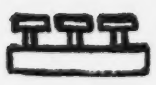


Some of the instruments are more difficult to play than others. The violin and the drum are no problem, but the clarinet and trumpet are more of a challenge.
The 2 folding charts, which explain how the instruments are held and played, help the children get started.

Trumpet

Each child working with the trumpet may have his own plastic mouthpiece, which can be cleaned at the end of the day by dipping into the plastic jar of antiseptic solution. This is a job one of the trumpet group might be assigned to do.

It is necessary to remind again and again about puffing out cheeks. It does not help. Make your lips buzz and blow hard through the tube.



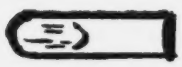
The valves can be removed and replaced easily. You will be able to tell if they have been put back incorrectly: the air column becomes blocked and no sound can be made.

Clarinet

The blue labels on the different parts of the instrument should be in a straight line when it is assembled. This insures proper positioning of the keys.

The parts must be connected tightly. A little cork grease (packed in the Box with the clarinet) on the

inside wood may be helpful. When a little bit is rubbed in with the warmth of your hands, it permits the pieces to slip together easily. Warm weather causes these parts to swell; putting them together and taking them apart may take a little effort.



A dozen reeds are included in the Box for those working with the clarinet. Like the mouthpieces, they are cleaned with a dip in antiseptic solution.

The reeds can become warped. If so, have the children wet them, place them against a flat surface, and smooth them down. They should go back into shape easily. Any reeds which become stained or cracked should be thrown away.

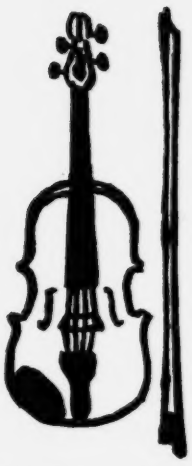
When the ligature, which is the metal clamp, is attached to the mouthpiece, the wider or lower peg should be turned first, as far as possible. The other peg needn't be tightened quite so much.

If the tone seems imperfect, warn the children that they may be covering too many holes. Encourage them to do little fingering of keys until they are able to make a good sound through the reed and then to try only the uppermost keys, with the left hand.

The clarinet must be held vertically as it is played. Holding it horizontally hampers the vibration of the reed and hence no sound is produced.

There is always the possibility that the instrument has been damaged in some way, but it is more likely that the children are having their troubles with one or more of the points above. The clarinet is a tough one to play. A certain amount of frustration may serve to remind the children of how much craftsmanship goes

into the making and playing of it. At times lack of success may teach as much as a good rich note!



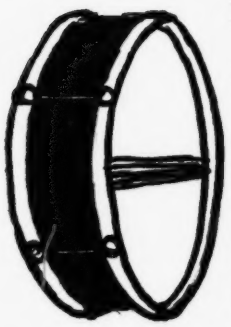
Violin

The violin looks like a very delicate instrument, but it usually stands up under the most eager investigation. The strings and the bridge may possibly break under too little or too much tension. If they do, don't worry. It is easy to glue the bridge back together, let it set, and put it to further use. In case you need them, an extra bridge and an extra set of strings are included in the Box.

Rosin is important and helpful. It should be rubbed on the bow often. It increases the friction between the horsehairs and the strings, causing them to vibrate more easily, and it improves the tone considerably.

One child should be assigned to loosen the bow (with the little knob at the square end of it) before putting the violin away each night. Too much tension causes the horsehair to split away from the wood.

The question of tuning is bound to come up. Children in the class who are taking violin lessons may feel the violin must be tuned perfectly before any further steps are taken. Our purpose in bringing the violin into the classroom, however, is not to encourage its use as a performing instrument but to let the class examine it and see how it works.



Snare Drum

The snares are like the violin bow. They hold up better if the handle controlling the snares is loosened before the drum is put away at night. Is there a boy in the class to whom this task, or honor, could be assigned?

The children will be able to gather much of this information on their own. Let them work out what they can, but help them if they run into difficulty.

In spite of all these things to remember, many of which may be quite new to you, bear in mind that these instruments are more rugged than you might think. Don't worry if they return to the Museum with a few scratches!

GETTING TO WORK

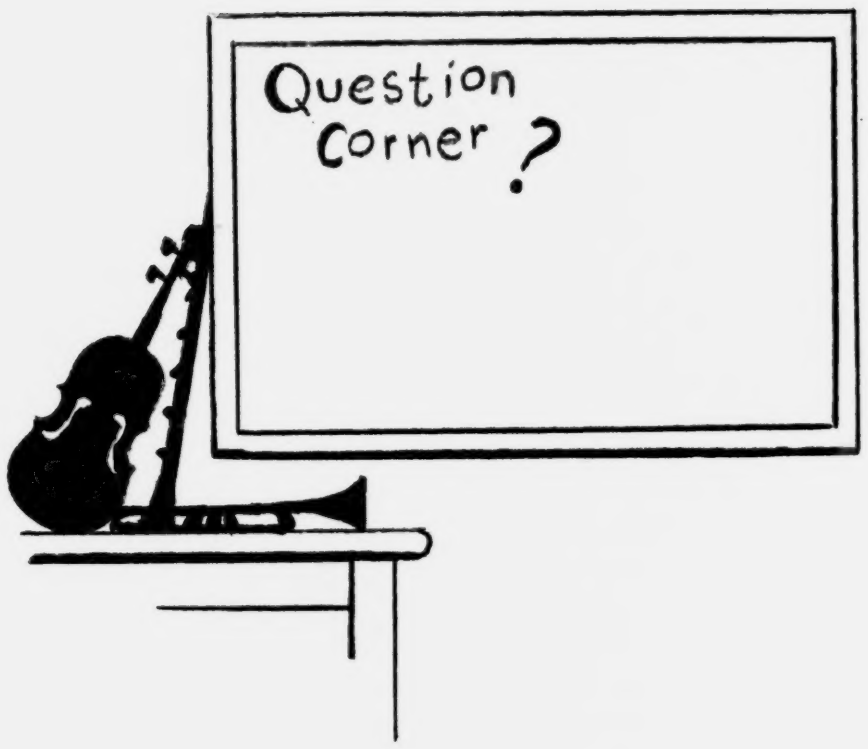
The class should be divided into four groups for this section. It works best if the children volunteer for their choice of instrument. The class often divides up into surprisingly equal groups.

Allow them to work in their groups for ten or fifteen minutes. Circulate among them, trying to catch the flavor of what they are doing, and where you are needed, help them. It is in learning to work as a group, sharing only one instrument, that they may need the most help.

After ten or fifteen minutes, the children will probably be bursting with excitement and anxious to tell one another what they have discovered, if they aren't doing so already. Reassemble the class (a prearranged signal for this simplifies matters) and

allow a little time for exchange of ideas. Keep the instruments out during this period, to encourage showing as well as telling.

After this, the children should have time to sit down on their own, with a pile of notecards or paper, to write out some of the questions that are brewing inside them.



Questions have begun to accumulate. More will come to mind, which should be expressed. Some or all may be written down. Some children, for whom writing is a problem, may be the most prolific questioners and you may wish to do some transcribing for them. The important thing is that as questions come up they be heard and discussed by the group.

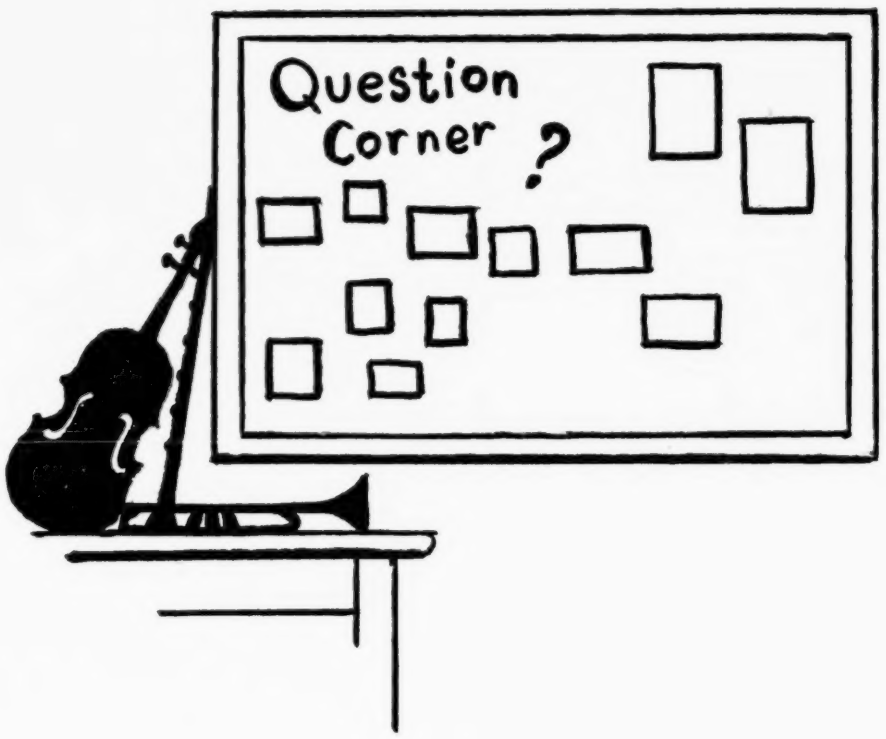
Where will the written questions be gathered? Do you have a corner with a bulletin board, or a slice of blackboard, which could be designated "The Question Corner" during the Box's stay in your classroom? It can be quite exciting for the children to put their questions and ideas up and add new ones continually. Those which have been answered can be removed to simplify things. You may want to combine your question corner with the music table as a gathering place for browsing with the instruments, charts, and pictures. Keep all this out and available during the day. It will encourage the children to keep mulling over the new material from the Box after class as well as during it.

SECOND DAY, AND PERHAPS MORE

The children will probably want to have a second day with the same instruments, possibly even a third. Have them go on in their groups, working on the questions they have been gathering. When it is time to stop, have the groups report their findings to the rest of the class. This will give the children an idea of what other instruments are like and encourage comparisons.

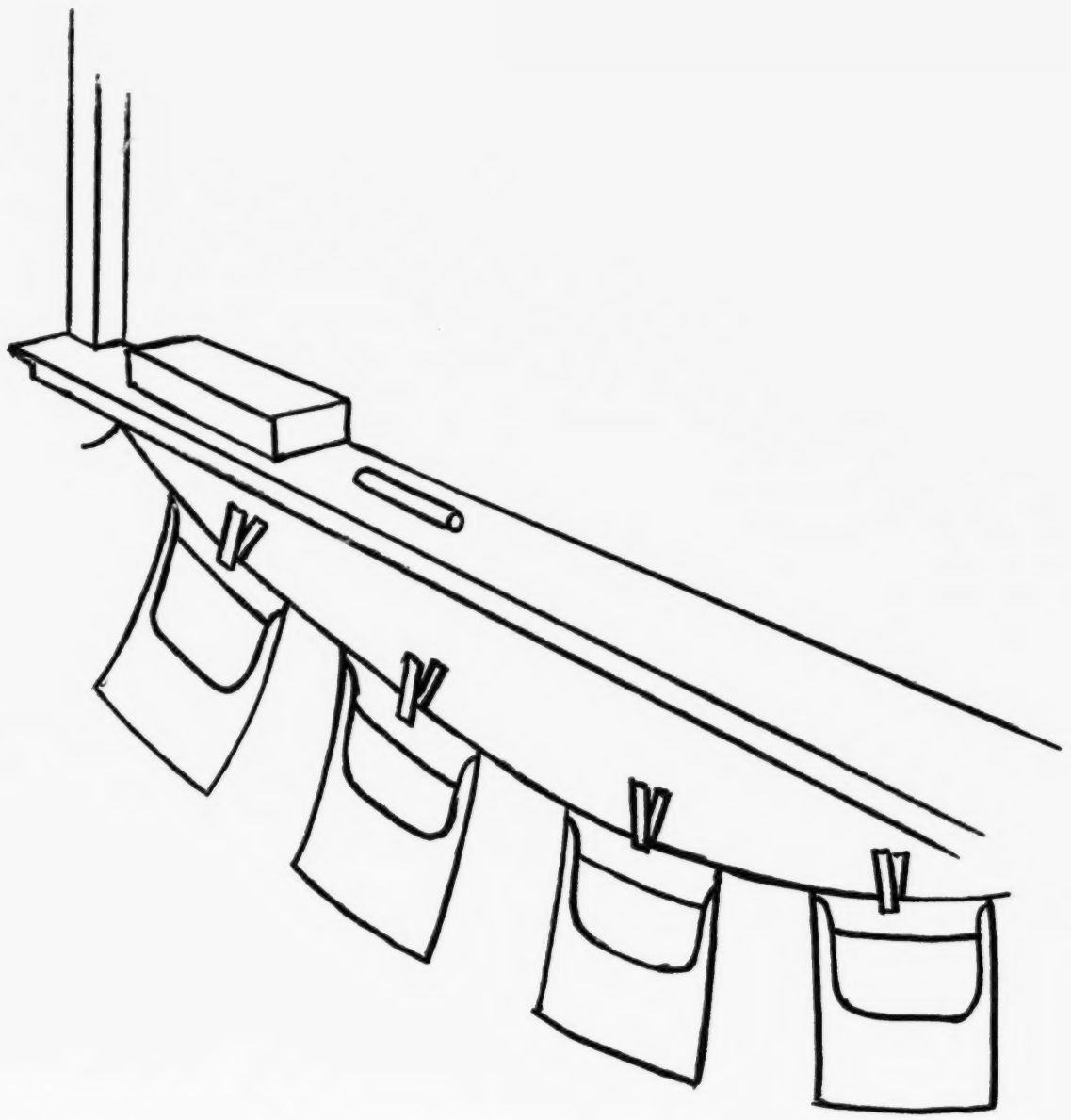
Let the class study a second instrument in the same way for one more day if they wish to continue.

Once you are ready to move on to Part II, keep the instruments out on a table and encourage browsing during free moments. This kind of pursuit can often bring surprising and valuable results.



IN THE INTERIM

Children with questions may seek answers to them in different ways. Some children may wish to pursue their interest through reading. Our clothesline of book excerpts can be tacked to the edge of your chalkboard so your class can refer to them in their leisure time.



MUSICAL MATCHING GAME

By now the children will have become acquainted with one musical instrument in depth, and to some extent with a second. Most of their learning has been acquired through seeing and handling the instruments, little through listening to their sounds. Now they are ready to be introduced to the characteristic sounds of those and other instruments.

In this part, the children will listen to a passage and select, from the picture pool, the instrument on which they think it was played.

What you need

The picture pool consists of eleven photographs of children playing instruments. We have used children rather than adults as models because we hoped it would give third and fourth graders a better sense of the relative size of the instruments.

Each instrument has characteristics which distinguish it in appearance and sound: size, the material of which it is made, or how it is played. We want the children to learn to distinguish these characteristics, rather than the names of the instruments,and to notice how the sounds they make reflect these qualities.

Side one of the record is made up of brief solo passages by each of the instruments in the picture pool, with the exception of the recorder passage, on which there is a harpsichord accompaniment. This passage is a challenge to the listeners. They may at first confuse the two instruments as one; usually, they can distinguish them if encouraged to listen carefully. The instrumental passages last no longer than thirty seconds each and are spaced far enough apart on the disc for you to find the band you wish and place the needle on it easily.

Record, side one:

1 trumpet
2 cymbal
3 xylophone
4 banjo
5 harp
6 tympani
7 chimes
8 violin
9 flute
10 bassoon
11 snare drum

The riddle book contains riddles which give information about the physical properties of each instrument and how it is played. They will be used as helpful hints in the matching game.

HOW TO PLAY THE GAME

The children should sit in a large circle or semicircle, to be able to see one another's pictures. Two or three children may share pictures, depending upon the size of the class. You could tell them that they are members of an orchestra, and that you will be the conductor.

The children will probably be interested in the different pictures, and have comments about them at the beginning. Let them discuss them for a while and speculate on what kinds of sounds they would be likely to make.

Then play a passage and have the children stand if they think the instrument is theirs. BUT, if they stand they must give a reason for doing so. Others should pitch in, voicing their own opinions, and a lively discussion will develop.

Here are some situations which may come up:

The passage is played.

IF	THEN
No one stands	Nothing gained, nothing lost. Apparently no one is ready to give a reason. Drop it for the moment and go on to the next sound. Later, when the other passages have been discussed, come back to it and have another try. You may need to "prime the pump" with a question or two to get the discussion started. If that doesn't help, use the riddle as a hint.
Several children stand	Let one child give his reason and see if others can dispute it.
The issue cannot be resolved	Play the tape again - it is hard to remember a sound when you are anxious to speak up. You may need the riddle describing the instrument as a hint.

Let the discussion continue as long as it is productive. When it is time to resolve things or to rescue a stymied class, read the riddle. It will offer more than a pat answer, as it must be deciphered to be understood. Once the question is answered, play the tape again to reinforce the connection of the picture and the sound.

WHAT CAN YOU EXPECT

Initially the children's reasons will probably be of the type: "I think it is the cello because that is the way it sounded when I once heard it." If they can be led beyond this, to use what they have learned in Part One in making pertinent guesses, an exciting discussion may result. For example, is it a brassy sound they hear, like the trumpet, or is it more like a reed? Does it seem to be hit or plucked? If it has a very deep sound, would this stringed instrument be likely to be larger or smaller than the violin?

Although you may be eager to bring out information you know the children have and can use, and in fact you may become rather excited yourself, let the discussion carry itself as long as it progresses well.

You may feel that the children are not well equipped at this point to speculate on sounds they may never have heard and instruments they have not seen. This is quite true. However, it is the process of putting ideas together, not the correctness of the answer, which is important. The children learn, as they play the game, to listen carefully to the sounds, and connect them with the structures of the different instruments.

The children will probably want to repeat the game, and they will certainly benefit from hearing the passages again. A quick run-through of the passages, changing their order, will be a good review and a chance to try out new knowledge. It is also enjoyable. You may want to do this the next day, or as a change of pace during Part IV, the section on making instruments.

You may find also that the children enjoy playing matching games on their own with the pictures and riddles. This helps them to become more familiar with the material. It also gives them a chance to continue on their own, which for many is a valuable change of pace after large class activities.

TAKING STOCK

Now is a good time to stop and take stock of what has happened and what is to come.

The class has probably come to know the four instruments fairly well through formal and informal instruction. Probably many students have learned to play a few notes or perhaps a tune on them. The students have also been presented with the sounds of a great variety of instruments and have learned to discuss sounds in terms of musical structures.

In Parts III and IV they will see a film on instrument making and then begin to experiment with making their own musical structures.

IN THE INTERIM

MYSTERY INSTRUMENT: WASHTUB BASS

One of the two packaging drums has been purposely designed to convert into a simple stringed instrument. These are usually made with a washtub, hence the term "washtub bass". Any of your students could easily make one at home. To assemble this one, string the nylon laundry cord (with a loop and bolt in its end) through the hole in the bottom of the packaging drum. Its looped end should be strung over the aluminum pipe (2 parts screwed together). Hook the pipe over the rim of the drum, as in the diagram. The bass works most successfully if it is tipped up slightly on one side, or a stick of wood or a small box.

Try leaving the makings of the bass out by the music table. Say nothing about it and see what happens. It may be that some inquisitive student will assemble the bass immediately. It may seem very mysterious and take some time. You may find it necessary to give some hints if no one is able to solve the mystery.

This instrument shows the principle of changing pitch in two ways: by pushing the pipe outward (see diagram I) the string's tension is altered, and by stopping the string at different points with one's fingers (diagram II) its length, and therefore its pitch, changes.

STEEL DRUM

This lesson is a preparation for the making of instruments which follows in Part IV. The steel drum is a good introduction to the film, and is quite a curiosity in itself. Bring it out, but don't tell the children much about it. They will want to look it over and play it. The film, which describes the making of steel drums in Trinidad, will follow this quite naturally.

What you need

The film, Music from Oil Drums (16 mm, 11 minutes), which is beautifully directed and narrated by Pete Seeger, describes the making of steel drums in Trinidad, and gives a taste of their unusual music.

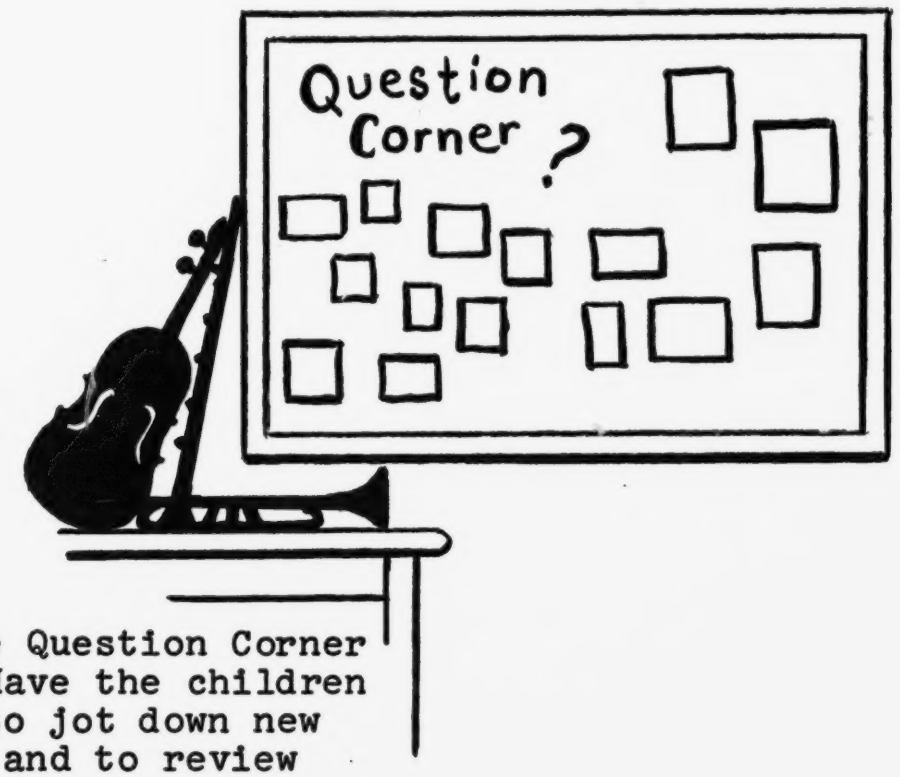
It has been included in the Box to communicate the enjoyment of making and playing one's own instruments rather than to teach specific facts about the process. The children may not be familiar with this new kind of music. The film, and the instrument construction which follows in the next section, may prompt them to use what they see around them to do some musical inventing of their own.

AFTER THE FILM

As a follow-up to the movie your class may wish to plan how they would make their own steel drums. They may wish to see the movie a second time to check the procedure and speculate on what materials they would use. Let this come as a spontaneous suggestion, however. The children may have other things on their minds which they would like to discuss, such as the differences between the steel drum and the snare drum.

NOTE

Do you have a student- or team-teacher who can take one half the class when convenient? It might be a good idea to rearrange the planning for Parts IV and V in such a way as to have half the class watch the film in an auditorium, and discuss it there, while the other half works on the first homemade instrument exercise of Part V. The two groups could exchange places the following day. This would make the beginning of Part V more peaceful, and would allow the children more equipment to work with.



How is the Question Corner coming? Have the children had time to jot down new questions and to review old ones?

Now it is time for a construction session using the grey pipes, tubes and hoses.

Our purpose in designing the kits of pipes and related matter is to enable the children to work on their own, as instrument makers, to put some of the principles they have been learning into practice as they build.

TOOT YOUR OWN HORN

POINTS TO KEEP IN MIND:

Pitch is related to length of pipe: as one pipe is added to another, the note it plays will deepen. How far it goes down will depend upon the length of the new pipe.

A pipe's "length" can be changed by boring a hole in it. If the hole is left uncovered, the air will escape at that point. The pipe acts as if it were only that long. Its note is higher. If the hole is covered up, the pipe plays a different note. It is longer. The clarinet's keys and the trumpet's valves serve the same purpose.

The reed set into the pipe vibrates. Its vibrations resonate in the tube. The clarinet's reed is shaped differently from this one, but it serves the same purpose.

When a bell is put on the end of a tube, the sound coming through is amplified. The trumpet and the clarinet both have wide, bell-like ends.

A pipe can turn corners, curve around many times, and still play the same note.

The children's constructions are not intended to perform as musical instruments, but only to exemplify some of their characteristics, and to give the children the experience of building their own sound-makers. The contrast between the sounds even a beginner can make on the trumpet and the noise from the plastic plumbing tubing should prevent anyone from having pretensions as a musician or an instrument-maker, and should make all aware of the complexity of the five real instruments, and the craftsmanship which has gone into their construction.

First Day

TRY OUT THE PIPES

Each team of two children should receive one reed, four pipes, one of each size, with an extra three-inch pipe, and three connectors. Spread the L's and T's around to give as many children as possible a chance to experiment with them. Save the hoses, funnels, and two-inch pipes with holes drilled in them for the second day of this section.

ABOUT THE REEDS

These are vibrators which work on the same principle as a clarinet reed, but are much easier to blow. (Our design was inspired by a foghorn!) We have included the unassembled parts of one reed in a plastic bag for the children to try to assemble and blow.

If a reed seems plugged and won't vibrate, bend it and flap it back once or twice.

STEP ONE: This lesson is bound to be noisy and exciting. Its purpose is to familiarize the children with the kits of pipes. Have them begin by working at their seats in pairs for about five minutes. Let the students find out all they can about their pipes. At the end of that time, get the group's attention (use your pre-arranged signal again), and let them discuss their findings briefly.

How many sounds could they make with the equipment they were given?

What does the reed do? Is it like the clarinet's reed? (This is a good time to have them take a close look at the unassembled reed.)

This kind of discussion is important while the class is working with the simplest elements of the kits.

STEP TWO: When they are ready to go on, combine pairs into groups of four and let them pool their equipment. See what they can make of what they have. After five or ten minutes, some interesting concoctions will have been created, and the pitch of excitement, if not of pipes, should be fairly high. It is up to your judgment whether or not to have the groups discuss their findings at this point. It may be important to have the chance, and it may be a fine time to stop the music!

Storage Suggestion: Have four collection areas (closet shelves or cartons) to which groups return their pipes. They will then be ready for tomorrow's use.

Second Day

SUPERSTRUCTURES

Today's lesson will carry yesterday's explorations a step further. In four large groups, using all the materials in the kit, the class will attempt to solve specific problems posed by you. In the recapitulation which follows, an attempt will be made to compare the characteristics of the pipes with those of the various instruments which came before.

Each of the four groups should receive a funnel. Groups working with Problems One and Four (see next page) should be given four pipes with holes drilled in them. Groups working with Problems Two and Three should each receive a hose.

HOW TO PROCEED

Combine yesterday's groups into four large teams. Assign a capable leader to each group, to insure some element of organization, and to help the group formulate and report its findings to the rest of the class.

Give each group its new materials and allow some time for them to get used to working with the materials and with each other.

You may find that you wish to extend this activity and devote a third day to the problem solving which follows. In any case, once they have had sufficient chance to dig in and experiment, pose these four problems, one to each group:

Make an instrument which:

1. will play at least four notes. How many more notes can you make it play? (This group will have received pipes with holes.)

2. looks small but makes a deep sound. (Hose is essential for this group.)

3. can be played in several different ways. What happens? (Hose for this group.)

4. must have three players to work. (They should have pipes with holes.)

RECAPITULATION

Signal for groups to reassemble and prepare to tell the rest of the class their findings. Have the children bring the instruments from the music table to wherever your discussion will take place. The string bass, which by now must be familiar to many of the students, should come too.

Each group should have a chance to demonstrate its findings. There may be other discoveries to demonstrate. As the discussion unfolds, encourage the students to relate their observations to the original instruments, to see if they apply to them as well. An enthusiastic bass player should report on that instrument, and draw comparisons with the violin.

Every class responds differently to this part of the Box. All enjoy it. It will be interesting to see what your class will do with it.

HOW DOES IT SOUND?

To use all the learning gathered up to now on new materials, tie things together, and conclude with a problem that is fun to solve. For this we use another matching game, in which children again see pictures of instruments. This time they theorize on what sounds they think the instruments might make. Then they hear them and see how accurate their theories have been.

This is a list of the passages on side two of the record. You may want to slip in passages from the first side of the record, from time to time, in order to make the choices more difficult.

1 string bass
2 cello
3 oboe
4 guitar
5 gong
6 bass drum
7 triangle
8 lute
9 recorder
10 trombone
11 autoharp

What you need

HOW TO PLAY THE GAME

What? The same game? Again a record and pictures? It may seem the same at first, but the children will soon learn that they must fill a taller order. Using another record and set of pictures, the children will again go through a matching process. They will discuss each instrument and present theories on what its sound will be like. Opinions will differ and a debate such as that in Part II will develop. In the first game, they began with the sound and tried to guess by their shapes which of the instruments played it. This time they begin with the structure and try to imagine what sound it would make.

The pictures in this series are somewhat related to those studied in the first. For example, the cello appears in the second series; the violin and string bass were in the first. The children will have to use the knowledge they have been gathering up to now on new instruments which are similar to the first set, yet subtly different. The discussion will be a good test of how much the class has learned, not so much of specific names and sounds as of the ability to generalize with the material they have absorbed.

You may find you are able to help the children think imaginatively by encouraging them to think back on what they know and choose good evidence to support their theories.

Play the appropriate passage after the discussion has run its course. Better yet, surprise them by playing three passages instead of the one, to see if any of the sounds fits their predictions. Which is the instrument we have been discussing?

A FINAL NOTE

Two weeks is a short time in which to learn much about sound and music. The Box has been intended as a lively introduction and a stimulus to deeper study. We hope your class has enjoyed it, and that it has offered them some new insights.

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Duncan Smith and Robert Walker, Designers

Paul Fishman
Judith Greene
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BOOKS TO READ

For the Teacher: General

Britten, Benjamin — The Wonderful World of Music. New York: Garden City Books, 1958. 68 pp.

Unique. Beautiful illustrations and excellent historical information. Teachers will appreciate it, children will learn little.

Commins, Dorothy — All About the Symphony Orchestra and What it Plays. New York: Random House, 1961. 137 pp.

Good descriptions of the instruments. Excellent, clear illustrations. Concentrates a bit too much on the forms of musical composition.

Donington, Robert — The Instruments of Music. New York: Barnes and Noble, Inc., 1962. 202 pp.

Very good summary of sound and all its implications. Describes the instruments, how they are held and how they sound. Rather complex diagrams.

(no author) — The Instruments of the Orchestra. Chicago: Scott Radio Laboratories, Inc.,1945.54 pp.

Adequate descriptions of all the instruments. Excellent photos show how they are held. A little too much emphasis on major works performed by each instrument.

Stoddard, Hope — From These Comes Music. New York: Thomas Y. Crowell, Co., 1952. 256 pp.

Good individual descriptions of the instruments. Excellent illustrations and diagrams.

For the Teacher: On Sound

Baer, Marian E. — Sound: An Experiment Book. New York: Holiday House, 1952. 127 pp.

Very good sound experiments. Helpful to teachers who spend time on the theory of sound.

Beeler, Nelson F. — Experiments in Sound. New York: Thomas Y. Crowell Co.,1961. 130 pp.

Good introduction to sound. Not quite elementary enough for children. Good experiments for the teacher to introduce.

Freeman, Ira M. — All About Sound and Ultrasonics. New York: Random House, 1961. 141 pp.

Good, very clear explanation of sound. Heavy emphasis on ultrasonics. A little too advanced for children. Good background information for the teacher.

Irving, Robert — Sound and Ultrasonics. New York: Alfred A. Knopf, 1959. 146 pp.

Too complicated for most children. Good summary of sound and special effects for the teacher.

Windle, Eric — Sounds you Cannot Hear. Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1963. 69 pp.

Clear explanation of ultrasonics. Not for children.

For the Children

Baer, Marian E.

Sound: An Experiment Book. New York: Holiday House, 1952. 127 pp.

Useful in experiments by children on their own. Teacher's preparation necessary.

Balet, Jan

What Makes an Orchestra. New York: Henry Walck, Inc.,1951. 41 pp.

Clear, light and chatty. Concentrates on the sounds instruments make. Very appealing.

Fraser, Beatrice & Ferrin

A Song is Born. New York: Little, Brown & Co.,1959. 32 pp.

Very elementary theory of music. Colorful illustrations. Not too informative.

Geralton, James

The Story of Sound. New York: Harcourt, Brace and World, Inc.,1948. 74 pp.

Good summary of sound. Clear to both teachers and children.

Huntington, Harriet E.

Tune-Up. Garden City, New York: Doubleday & Co., Inc.,1942. 76 pp.

Very simple language explains each instrument of the orchestra. Excellent closeup photos.

Hughes, Langston

The First Book of Rhythms. New York: Franklin Watts, Inc.,1954. 63 pp.

Very elementary introduction to rhythms in every part of life. Not immediately applicable to music.

Keen, Martin L.

The How and Why Wonder Bock of Sound. New York: Wonder Books, 1962. 48 pp.

Good general survey of sound. Many illustrations. For teachers and children.

For the Children

Lacey, Marion

Picture Book of Musical Instruments. New York: Lothrop, Lee, and Shepard Co., Inc.,1942. 55 pp.

Clear, descriptive, but very brief. Good clear illustrations.

Levine, Jack & Takeru Iijima

What Musical Instrument for Me? New York: Sterling Publishing Co.,Inc.,1959. 125 pp.

Practical, how-to-play-nearly-everything. Shows parts of the instruments, how to hold and blow them. Good closeup pictures.

Podendorf, Illa

The True Book of Sounds We Hear. Chicago: Children's Press, 1955. 47 pp.

Extremely simple and entertaining. Not too applicable to music.

Sherman, Elizabeth

Merry Music Makers. Chicago: Children's Press, Inc.,1952. 32 pp.

Very simple explanations and descriptions of the instruments and how they sound. Funny, colorful animal pictures accompany the text.

FILMS TO SEE

FLUTE, CLARINET, AND BASSOON

THE STRING TRIO

TRUMPET, HORN, AND TROMBONE

16 mm
11 min.
sound

Coronet Films
Coronet Building
65 E. South Water Street
Chicago, Illinois

SCIENCE IN THE ORCHESTRA

16 mm
12 min.
sound

McGraw Hill
330 West 42nd Street
New York, New York

TOOT, WHISTLE, PLUNK, AND BOOM

16 mm
10 min.
sound

Walt Disney 16 mm Films
545 Cedar Lane
Teaneck, New Jersey

SOUNDS FAMILIAR

16 mm
23 min.
sound
free

Bell Telephone Company

Just call or visit your local telephone business office.

THE SPEECH CHAIN

MAKING MUSIC WITH WIND AND STRING

16 mm
19 min.
sound
free

Bobbs-Merrill Co., Inc.
4300 West 62nd Street
Indianapolis, Indiana

A little advanced for children.

RECORDS TO HEAR

Saint-Saëns. Carnival of the Animals.
narrator : Leonard Bernstein.
Columbia Masterworks.

Excellent. Music and narration are very appealing. Children play the instruments.

Britten. Young Person's Guide to the Orchestra. (On same record)

Excellent. The narrator is a child. Examines how Britten put a piece of music together and built each instrument onto the base of the preceding instruments.

A Child's Introduction to the Orchestra and All Its Instruments.
Golden Records.

Good. Very entertaining. Lyrics about the instruments illustrate and accompany the music each instrument play. Quite elementary.

PLACES TO GO AND THINGS TO SEE

Young Audiences	Organization with many local branches. Will send various instrumental groups to schools to perform and discuss their instruments. In the Boston area, call the Young Audiences office, 116 Newbury St., Boston, 266-0322, for information about programs.
Youth Concerts	Series of young people's concerts affiliated with the symphony orchestras of several cities. Season tickets about $5.00. In Boston, call or write Symphony Hall, 251 Huntington Avenue, Boston, 266-1492, for further information.
Youth Symphony Orchestras	Orchestras composed of children of various ages in many cities. Rehearsals and several concerts a year are free to school-age audiences. In the Boston area, call Boston University, School of Fine Arts, 262-4300, Extension 8220 for a schedule of this year's presentations. In other cities, call the office of the local symphony orchestra.

ABOUT THE MATCH BOX PROJECT

In June, 1964, under a contract with the United States Office of Education, we started the MATCH Box Project at the Children's Museum. The term "MATCH" stands for Materials and Activities for Teachers and CHildren. A MATCH Box contains materials, equipment, supplies and activities that work together to foster the teaching/learning of specific subjects at the elementary school level. The Boxes contain a high proportion of real objects and require little or no auxiliary equipment or supplies from the school. In every Box there is a Teacher's Guide which serves to organize and activate the three-way encounter between the materials, the teacher and the children.

MATCH Boxes are designed for the relatively intensive treatment of a subject over two weeks, and can be circulated among teachers through material resource centers, libraries, museums, AV departments.

As the Boxes are being developed, materials and activities are tried out in the schools. Prototypes are then assembled, evaluated in local classrooms, and revised prior to distribution.

The first five MATCH Boxes, completed in September, 1965, were: GROUPING BIRDS (Grades K-2); THE CITY (1-3); THE ALGONQUINS (3,4); SEEDS (3,4); and A HOUSE OF ANCIENT GREECE (5,6).

The Box described in this guide is one of a second "generation" of Boxes completed in September, 1966: HOUSES (Grades 1-3); ANIMAL CAMOUFLAGE (2,3); NETSILIK ESKIMOS (3,4); MUSICAL SOUNDS AND SHAPES (3,4); ROCKS (5,6); JAPANESE FAMILY 1966 (5,6); and MEDIEVAL PEOPLE (5,6).

A third generation of Boxes will be finished in September, 1967.

Though the Boxes are our most tangible product, we use them and the developmental process itself as a method for studying the role that real materials play in teaching and learning, and as a way of seeking principles by which media may be combined to create effective educational systems.

This Box and this guide are prototypes and will be revised. We welcome your comments and criticisms. Please write to the MATCH Box Project, The Children's Museum, 60 Burroughs Street, Boston, Massachusetts 02130.

Fred H. Kresse
Project Director